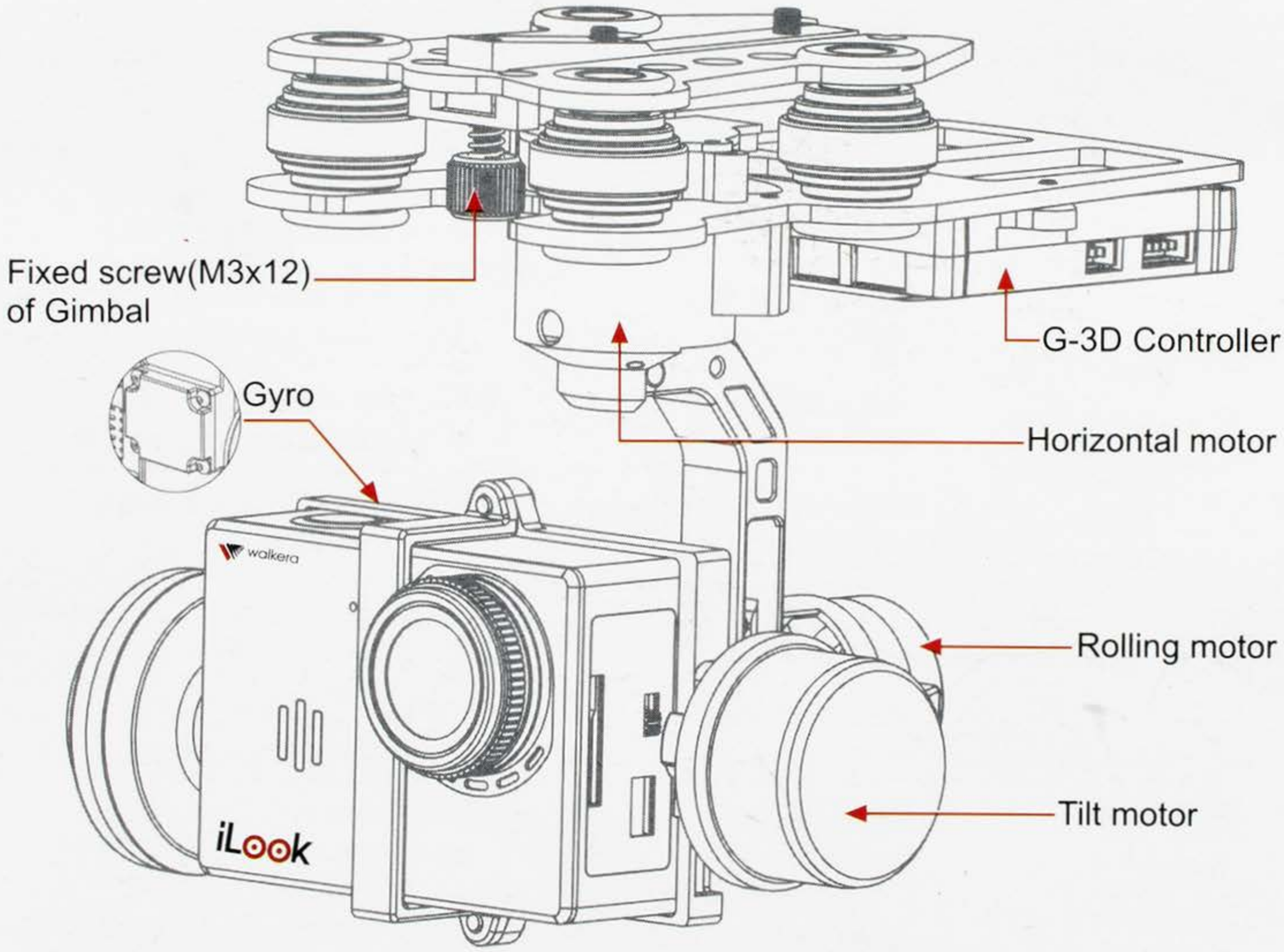
G-3D Gimbal User Manual

G-3D Gimbal is a high-precision and portable Gimbal specifically designed for iLook, iLook+, GoPro series cameras by Walkera. Adopting aluminum alloy CNC precision machining, brushless motor drive, high accuracy intelligent electronic control system, it can be widely applied to film photography, advertising aerial photography etc. The highly precise and stable structure can ensure the aircraft accurately control the mounted camera to keep stable during high-speed flying and take the best aerial photography pictures and videos.



1.0 Features and Technical Parameters

(1) Support iLook, iLook+, GoPro series camera video auxiliary output.

(2) Support power supply voltage compensation.

(3) Support the motor drive end short circuit protection.

(4) Support initial tilt and roll angle custom.

(5) Support stick position mode and rate mode.

(6) Support regular receiver.

(7) Operating voltage: DC 7.4V~28V (recommended 12V, 3S lipo battery).

(8) Operating current: 500mA-600mA (depends on the voltage supplied and motor power).

(9) Operating temperature: -15℃~ 65℃.

(10) Sensor: 3-axis MEMS gyro and 3-axis MEMS accelerometer.

(11) Control accuracy: 0.02°.

(12) Angle control range: -135°~ 90° (tilt), -45°~ 45° (roll).

(13) Applicable camera: iLook、iLook+、GoPro Series.

(14) Size: 114.3mm x 97.5mm x 106.6mm(L x W x H).

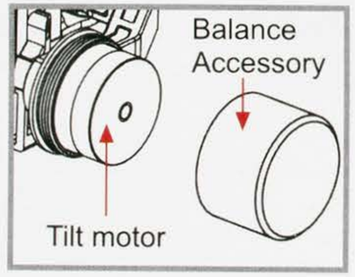
(15) Weight: 188g(Without camera).

(16) The controller program can be upgraded on Walkera website (UP02 and UP02 adapter requested).

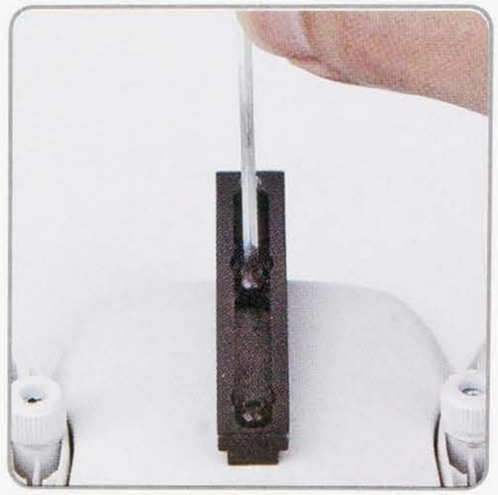
2.0 Matters needing attention

(1) When Gimbal is assembled with camera and meet the Gimbal barycenter is unbalanced, assemble Gimbal Balance Accessory is necessary.

(2) Please make sure the Gimbal equipped with camera before power on, otherwise it will effect the accuracy in calibration.

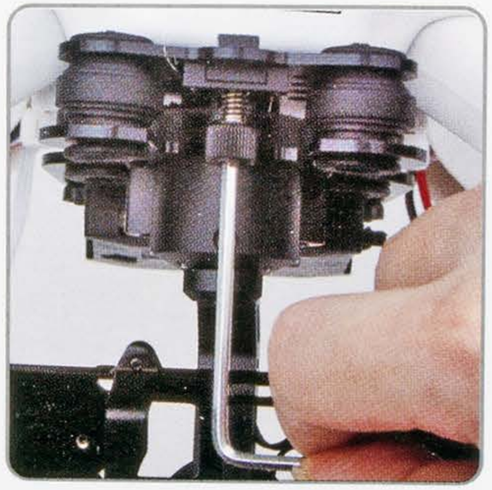


3.0 Installation instructions (e.g QR X350PRO)

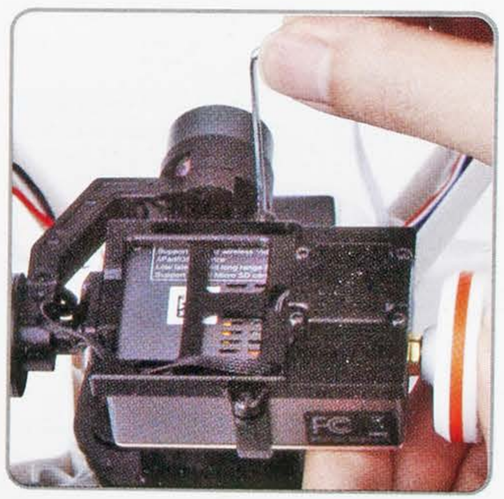


3.1 Use 2 M3X8 screws to install the Gimbal fixing block into the bottom of the fuselage.

3.2 Align the Gimbal chute with the fixed block, then install it into the bottom of fixing block in the direction of the arrow.

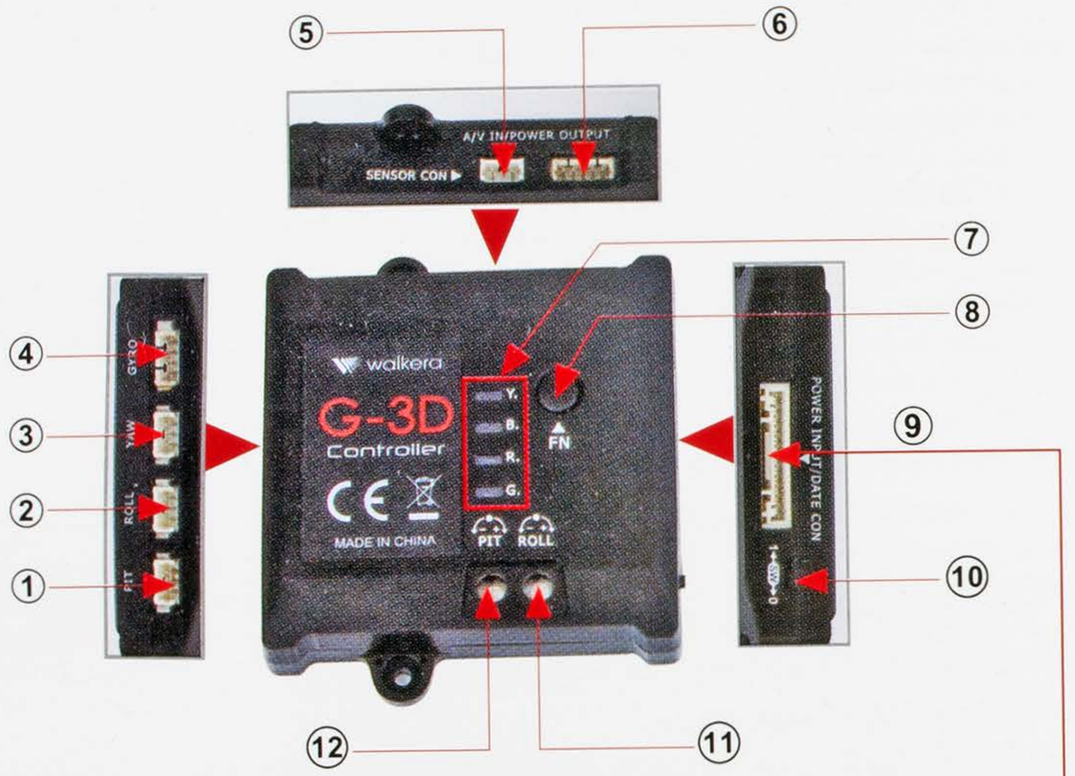


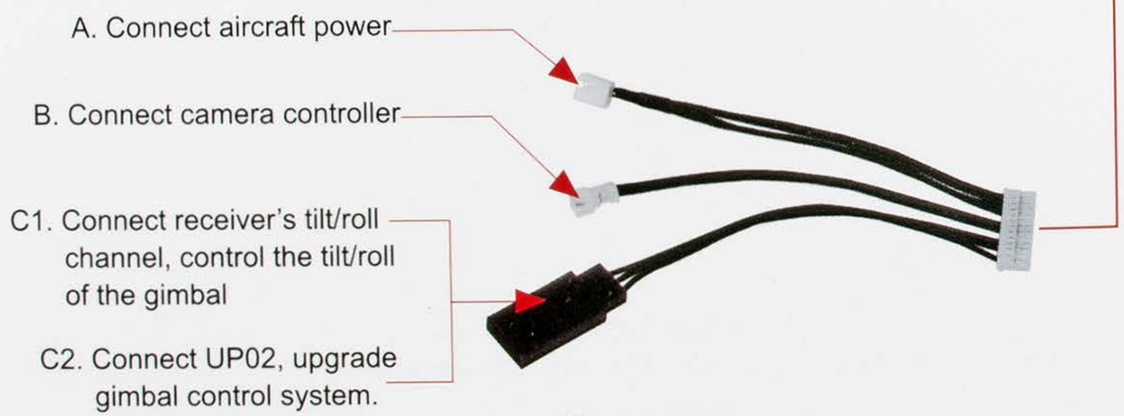
3.3 Fix the spring into M3x12 screw, then align the screw with the threaded hole and tighten to fix the Gimbal.



3.4 Install the camera to the Gimbal, fix it with the camera fixing frame (make sure the gap close to the lens), then use 2 M2X4 screws to tighten the camera fixing frame.

4.0 Function




A. Connect aircraft power
B. Connect camera controller
C1. Connect receiver's tilt/roll channel, control the tilt/roll of the gimbal
C2. Connect UP02, upgrade gimbal control system.

S/N	G-3D Connector	Function
1	Tilt motor connector(PIT)	Connect with the tilt motor.
2	Rolling motor connector(ROLL)	Connect with the rolling motor.
3	Horizontal motor connector(YAW)	Connect with the horizontal motor.
4	Gyro connector(GYRO)	Connect with the gyro.
5	Sensor connector(SENCOR CON)	Connect with the sensor.
6	Audio and video input / power output connector (A/V IN/POWER OUTPUT)	Audio and video input / power output.
7	Operating status indicator (G/R/B/Y)	Operating status indication (green / red / blue / yellow light).
8	Function keys(FN)	Function selection keys when enter into adjusting mode.
9	Power input / data connector (POWER INPUT/DATE CON)	Power input DC 7.4V~28V (recommended 12V, 3S lipo battery) / data connection.
10	Toggle switch(1 ← SW → 0)	Switch between stick position mode (position 1) and rate mode (position 0).
11	ROLL Knob	AUX knob.
12	PIT Knob	AUX knob.

5.0 Instruction without connecting receiver

5.1 Knob function

PIT Knob	Adjusting tilt angle(midpoint is 0°, angel range is -135°~ 90°)
ROLL Knob	Adjusting roll angle(midpoint is 0°, angel range is -45°~ 45°)

5.2 Adjusting method

Put the gimbal on the horizontal position, initialization, red LED flash, initialization finished, green LED keeps solid, you can adjust the tilt and rolling angle according to the gimbal status.

(1) If you want the gimbal forward, please adjust the PIT knob in counterclockwise direction, and vice versa.

(2) If you want the gimbal leftward, please adjust the ROLL knob in counterclockwise direction, and vice versa.

6.0 Instruction with connecting receiver

6.1 Knob function

PIT Knob	Adjusting tilt angle(maximum -135°~ 90°)
ROLL Knob	Adjusting roll angle(maximum -45°-45°)

6.2 Setting method

Put the gimbal on the horizontal position, initialization, red LED flash, initialization finished, green LED keeps solid, you can adjust the tilt and roll angle according to your needs.

Take the mid-point as start point, you can adjust the PIT knob in counterclockwise direction as needed to set the tilt range(maximum -135°~ 90°); Adjusting ROLL knob to set the rolling range is the same as tilt settings(maximum -45°~ 45°).

6.3 Instruction for stick mode

(1) Stick position mode means adjust tilt and roll angle through transmitter tilt and roll stick. Turning switch(1 ←SW→ 0) to 1 position, the tilt and roll angle will be changed in corresponding to the tilt and roll stick input, take the mid-position as start position, the more you put tilt and roll stick, the more the gimbal tilt and roll angle be changed and vice versa. The gimbal tilt and roll angle will be 0° when the tilt and roll stick at the mid-point.

(2) Stick rate mode means adjust tilt and roll change rate through transmitter tilt and roll stick. Turning switch(1 ←SW→ 0) to 0 position, the tilt and roll change rate will be changed in corresponding to the tilt and roll stick input, take the mid-position as start position, the more you put tilt and roll stick, the more the gimbal tilt and roll change rate be changed and vice versa. The gimbal tilt and roll rate will be 0° when the tilt and roll stick at the mid-point.

Remark: When using transmitter knob adjust the gimbal tilt and rolling, suggest adopt the position mode(slide the switch to 1 position), same as the transmitter stick.

7.0 Adjusting parameter mode instruction

7.1 Knob function

PIT Knob	Adjusting motor gain control.
ROLL Knob	Adjusting motor output power.

7.2 Parameters adjustment principles

In the case of changing the camera on gimbal, adjust the parameters according to the load conditions. Under the same load conditions, when the motor output power increases, you must reduce the motor control gain. And when the motor output decreases, you can appropriately increase the control gain. Therefore, when the electrical power is enough, by reducing the motor power, you can get larger control gain and then get a better stabilization effect. But when the motor power is reduced, the gimbal's ability to resist the disturbance will be reduced at the same time.

7.3 Adjustment methods

Put the gimbal in horizontal position. Power on and enter into the electricity initialization state. The red light flashes up first and then the green light will be constant after the red light passes through. Under this condition, you can enter the reference model to adjust gimbal parameters when it is necessary.

7.3.1 Enter Into PAM Instructions

Press function key(FN) over 3 seconds, Red/Blue/Yellow LED flash quickly simultaneously indicating PAM entered.

7.3.2 Tilt motor output power and Gain Control Adjusting

(1) Enter into PAM, press function key(FN) once until red LED flashes quickly indicating tilt Motor Output Power and Gain Control Adjusting mode entered.

(2) Reset PIT/ROLL knob that means adjusting PIT/ROLL knob at middle position, blue/ yellow LED keep solid constantly.

(3) Please wait 3~5 seconds until red LED flashes slowly, then you can adjust the tilt motor output power and gain control. ①To increase the tilt motor output power, please adjust the ROLL knob clockwise properly and yellow LED flashing, and vice versa. ②To increase the tilt motor gain, please adjust the PIT knob clockwise properly and blue LED flashing and vice versa.

(4) Press function key(FN) triple until Green LED keeps solid, adjusting parameters will be saved and exit PAM.

7.3.3 Roll motor output power and Gain Control Adjusting

(1) Enter into PAM, press function key(FN) twice until blue LED flashes quickly indicating roll motor output power and Gain Control Adjusting mode entered.

(2) Reset PIT/ROLL knob that means adjusting PIT/ROLL knob at middle position, red/ yellow LED keep solid constantly.

(3) Please wait 3~5 seconds until blue LED flashes slowly, then you can adjust the Roll motor output power and gain control. ①To increase the Roll motor output power, please adjust the ROLL knob clockwise properly and yellow LED flashing, and vice versa. ②To increase the Roll motor gain, please adjust the PIT knob clockwise properly and red LED flashing and vice versa.

(4) Press function key(FN) twice until Green LED keeps solid, adjusting parameters will be saved and exit PAM.

7.3.4 Horizontal motor output power and Gain Control Adjusting

(1) Enter into PAM, press function key(FN) triple until yellow LED flashes quickly indicating Horizontal motor output power and Gain Control Adjusting mode entered.

(2) Reset PIT/ROLL knob that means adjusting PIT/ROLL knob at middle position, red/blue LED keep solid constantly.

(3) Please wait 3~5 seconds until yellow LED flashes slowly, then you can adjust the Horizontal motor output power and gain control. ①To increase the Horizontal motor output power, please adjust the ROLL knob clockwise properly and blue LED flashing, and vice versa. ②To increase the Horizontal motor gain, please adjust the PIT knob clockwise properly and red LED flashing and vice versa.

(4) Press function key(FN) once until Green LED keeps solid, adjusting parameters will be saved and exit PAM.

7.3.5 Parameters save and PAM exit

Enter into PAM, Press function key(FN) four times until green LED keeps solid, adjusting parameters will be saved and exit PAM.

Remark: Please adjusting PIT/ROLL knob to middle position after PAM exit.

8.0 Adjusting parameter mode instruction

(1) Motor output short circuit protection:

When the motor output end short circuit, the controller will cut off the motor output automatically to protect the controller not burn. When the short circuit problem be solved, please re-connect the power supply again to unlock the protection.

(2) Angle overrun protection:

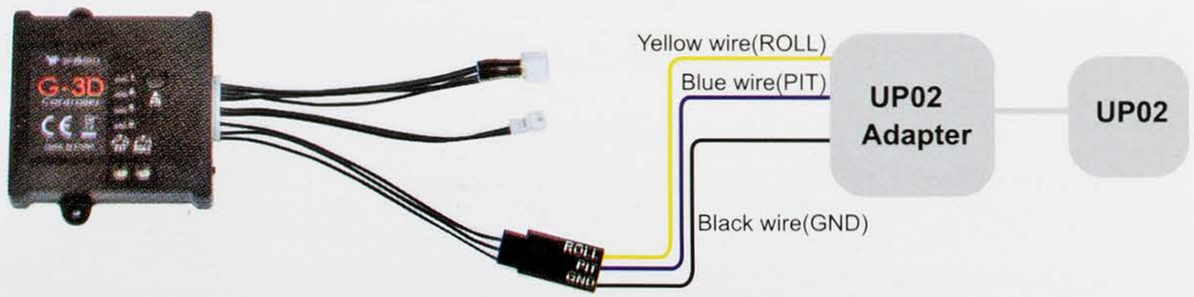
When the camera overrun, the controller will cut the motor output automatically to protect the wires not twist off under unexpected condition unless problems solved.

9.0 G-3D program upgrade

(1) The G-3D program can be update online, new program will be released on Walkera website.

(2) Upgrade tool: UP02 and UP02 adaptor.

(3) Please insert the blue single wire into PIT port, insert the yellow wire into the ROLL port, insert the black wire into GND port.



10.0 Work instructions

Disconnect/ connect with receiver	Red LED flashes quickly	Electricity in the initialization, please keep the gimbal still
	Green LED keeps solid	Initialization finished
Connect with receiver	Red LED keeps solid	Receiver Tilt channel be connected.
	Blue LED keeps solid	Receiver Rolling channel be connected.
Enter PAM	Red/blue/yellow LED flashes quickly simultaneously	Enter PAM
Tilt Motor Output Power and Gain Control Adjusting	Red LED flashes quickly/slowly	Enter Tilt Motor Output Power and Gain Control Adjustment
	Blue LED light off/ keeps solid/ flash	PIT knob isn't in the middle/ in the middle/ under adjusting
	Yellow LED light off/ keeps solid/ flash	ROLL knob isn't in the middle/ in the middle/under adjusting
Roll Motor Output Power and Gain Control Adjusting	Blue LED flashes quickly/ slowly	Enter Roll Motor Output Power and Gain Control Adjustment
	Red LED light off/ keeps solid/ flash	PIT knob isn't in the middle/ in the middle/under adjusting
	Yellow LED light off/ keeps solid/ flash	ROLL knob isn't in the middle/ in the middle/under adjusting
Horizontal Motor Output Power and Gain Control Adjusting	Yellow LED flashes quickly/ slowly	Enter Horizontal Motor Output Power and Gain Control Adjustment
	Red LED light off/ keeps solid/ flash	PIT knob isn't in the middle/ in the middle/under adjusting
	Blue LED light off/ keeps solid/ flash	ROLL knob isn't in the middle/ in the middle/under adjusting
Parameters save and PAM exit	Green LED keeps solid	Save parameters and Exit PAM